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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,053	08/30/2001	Robert W. Callahan	R-0086USAAPN01	1038
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REVEO, INC. 3 WESTCHESTER PLAZA ELMSFORD, NY 10523			EXAMINER CHANEY, CAROL DIANE	
			ART UNIT	PAPER NUMBER
			1745	

DATE MAILED: 11/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/943,053

Applicant(s)

CALLAHAN ET AL.

Examiner

Carol Chaney

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-8,10-12,14,16-28,37,38 and 41-44 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-8,10-12,14,16-28,37,38 and 41-44 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9-18-02, 12-12-01.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Election/Restrictions***

Applicant's election of a species having methacrylic acid as a water-soluble ethylenically-unsaturated acids and acid derivatives, an anion conducting species as a species for replacing water in the polymer matrix material, and no water-soluble or water-swellaable polymer in the reply filed on 30 August 2004 is acknowledged.

Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3, 5-8, 10-12, 14, 16-28, 37, 38, 41-44 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation in claim 1 of "a solution of a desired species" is indefinite because the genus or more comprehensive class to which the species is member is not defined.

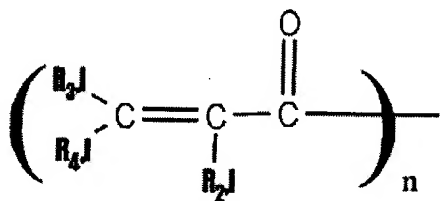
In claim 5 "a neutralizing agent" is indefinite because the type of neutralization, and the items intended to be neutralized are not defined.

Claims 16-18, and 21-23 recite the limitation "the total monomer solution". There is insufficient antecedent basis for this limitation in the claims. Each of these claims are

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dependent upon claim 1, which fails to describe a "monomer solution". Both a solvent and a solution should be described to define a monomer solution.

Claim 19 is indefinite because the groups  $R_2$ ,  $R_3$ ,  $R_4$  are not defined. Claim 19 apparently defines  $R_2$ ,  $R_3$ ,  $R_4$  as groups consisting of H, C, C2-C6 alkanes, C2-C6 alkynes, aromatics, halogens, carboxylic acid derivatives, sulfates and nitrates. If "i" is intended to be the variable defined by "i" in claim 19, it is unclear if the "i"s found in the formula of claim 19 are intended to be numbers, according to the statement "wherein i = 1 → n and n ≥ 2" or if "i" is intended to be a chemical moiety defined by the statement " $R_2$ ,  $R_3$ ,  $R_4$ , i are independently selected from the groups consisting of H, C, C2-C6 alkanes, C2-C6 alkynes, aromatics, halogens, carboxylic acid derivatives, sulfates and nitrates." In either case, it is unclear how chemical groups would be bonded to provide the repeating unit given by:



If  $R_2$ ,  $R_3$  and  $R_4$  are selected to be H, for example, the meaning of 'i' is unclear, and the manner in which n could be greater than 2 is unclear. If  $R_2$ ,  $R_3$  or  $R_4$  are selected to be C, for example, the structure described would be unreasonable.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 20, 24, 25, 37, and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Reichert et al., US Patent 5,549,988.

Reichert et al. disclose a polymer electrolytes formed from polyacrylic acid or polyacrylic acid derivatives adapted to engage electroactive materials including KOH. The electrolytes are formed by crosslinking aqueous solutions of monomer and crosslinking agent. In a specific example, acrylamide is used as a monomer, N-N'-methylene bis-acrylamide ethylenediamine is used as a crosslinking agent and ammonia persulfate, a chemical polymerization initiator is also added. Since the total weight of the film is about 2 grams, and 0.032 g of ammonium persulfate are added, the amount of chemical polymerization initiator is less than 3 percent by weight of the film. (See column 5, lines 29-40.) The film is soaked in KOH, and thus includes "a solution of a desired species".

Applicants' independent claim 1 recites an electrochemical cell which contains an electrolyte which comprises the polymerization product a water-soluble ethylenically-unsaturated acid or acid derivative, a crosslinking agent, a "solution of a desired species". Applicants' recitation of water used for polymerization and the amount of water "selected to swell the polymer material to a defined volume upon curing" are

considered to be product-by-process limitations since the water used in the process of making the electrolyte material is not necessarily part the product claimed. Therefore the limitations "wherein a quantity of water is used for polymerization" and "the quantity [of water] being selected to swell the polymer material to a defined volume upon curing." are not given patentable weight.

Claims 1, 3, 19, 20, 24, 25, 37, and 41 are rejected under 35 U.S.C. 102(b) as being anticipated by Viescou US Patent 3,871,918.

Viescou discloses an alkaline gel electrolyte which is formed from a solution of:

- 56 ml of a 5-7 N solution of KOH
- 6.28 ml of a 50 percent acrylamide solution;
- 6.28 ml of a 50 percent acrylic acid solution;
- 28 ml of a 2 percent methylenebisacrylamide solution;
- 1 ml of a 50 percent ammonium persulphate solution;
- 0.5 ml of .beta.-dimethylaminopropionitrile.

The electrolyte is polymerized in situ within the battery. (See column 4, lines 5-14 and 30-36.) The battery is of the air depolarization type, and in a specific embodiment includes a zinc (metal fuel) electrode. (See column 4, lines

The methylenebisacrylamide is the crosslinking agent for the solution and ammonium persulfate is the chemical polymerization initiator. As discussed above, the amount of water used is not given patentable weight.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10-12, 14, 16-18, 21-23, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viescou US Patent 3,871,918.

As discussed above, Viescou discloses applicants' invention essentially as claimed, with the exception that with regards to claims 10-12, 16-18 and 21-23 and 38 Viescou does not specifically disclose weight percentages of the monomers, cross-linking agents, water or chemical cross-linking initiator used in electrolyte forming solutions. The "percent solutions" recited by Viescou are not clearly weight percent solutions or volume percent solutions. However, the amounts of polymer matrix materials, the amount of water, the amount of cross-linking agent and chemical cross-linking initiator used by Viescou appear to be at least close to the amounts recited by the applicants. Claims that differ from the prior art only by slightly different (non-overlapping ) ranges are prima facie obvious without a showing that the claimed range achieves unexpected results relative to the prior art. See *In re Woodruff*, 16 USPQ2d 1935,1937 (Fed. Cir. 1990.)

With regards to claim 14, Viescou discloses acrylic acid as the water soluble ethylenically unsaturated acid used in forming an electrolyte, rather than methacrylic acid. Acrylic and methacrylic acid are homologous compounds, differing by one methyl

group, and compounds which are homologs (compounds differing regularly by the successive addition of the same chemical group, e.g., by -CH<sub>2</sub>- groups) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. In re Wilder, 563 F.2d 457, 195 USPQ 426 (CCPA 1977).

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Anani et al., US Patent 5,541,019 A

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carol Chaney whose telephone number is (571) 272-1284. The examiner can normally be reached on Mon - Fri 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Carol Chaney  
Primary Examiner  
Art Unit 1745

20 November 2004